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**Patent Application Transmittal**

(only for new nonprovisional applications under 37 C.F.R. 1.53(b))

**EXPRESS MAIL**

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Date: November 17, 2000  
Attorney Docket No.: DT-3788

09/716189  
ASSISTANT COMMISSIONER FOR PATENTS  
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Sir:

With reference to the filing in the United States Patent and Trademark Office of an application for patent in the name(s) of: **James MacPherson**

entitled: **SYSTEM AND METHODS FOR TRADING MUTUAL FUNDS**

X New Application  
   Continuing Application

   Continuation    Divisional    Continuation-in-Part (CIP)  
of prior application serial no.   , filed   .

[Note: If priority under 35 U.S.C. 120 involves a series of respectively copending applications, then in this amendment identify each and its relationship to its immediate predecessor.]

   The prior application is assigned of record to   .

   This is an application of a small entity under 37 CFR 1.9(f) and the amounts shown in parentheses below have been employed in calculating the fee:

   Small Entity Verified Statement(s) is (are) enclosed.  
   Small Entity Verified Statement(s) filed in prior application, status still proper and desired

**Patent Application Transmittal**  
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The following are enclosed:

X Specification ( 18 pages) & Abstract  
X 13 Sheet(s) of Drawings  
X 47 Claim(s) (including 3 independent claim(s))  
X This application contains a multiple dependent claim  
— Information Disclosure Statement, PTO-1449 and — references;

X This filing fee has been calculated on the basis of the claims as amended by any enclosed preliminary amendment as follows:

Basic Fee, \$710.00 (\$355.00).....	\$ 710.00
Number of Claims in excess of 20 at \$18.00 (\$9.00) each:.....	486.00
Number of Independent Claims in excess of 3 at \$80.00 (\$40.00) each:.....	00.00
Multiple Dependent Claim Fee at \$270.00 (\$135.00).....	270.00
<u>X</u> Assignment Recording Fee \$40.00 .....	40.00
Total Filing Fee.....	\$ 1,506.00

X The Commissioner is hereby authorized to charge payment of the following fees associated with this communication and credit any overpayment to Deposit Account No. 50-0955. A duplicate copy of this sheet is enclosed

- (x) Any additional filing fees required under 37 CRF 1.16  
(x) Any patent application processing fees under 37 CRF 1.17.

X Oath or Declaration and Power of Attorney  
X New X signed — unsigned  
— Copy from a prior application (37 C.F.R. 1.63(d))

Deletion of Inventors

— Signed Statement attached deleting inventor(s) named in the prior application (37 C.F.R. 1.63(d)(2) and 1.33(b))

— Power of attorney and/or correspondence address was changed during prosecution of the prior application. The new power of attorney is to , Reg. No. . The new correspondence address is indicated above.

— Incorporation by Reference (for continuation or divisional application)  
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

— A Preliminary Amendment is enclosed.  
(Claims added by this amendment have been properly numbered consecutively beginning with the number next following the highest numbered original claim in the prior application.)

**Patent Application Transmittal**

(only for new nonprovisional applications under 37 C.F.R. 1.53(b))

- ☐ Cancel in this application original claims \_\_\_\_ of the prior application before calculating the filing fee. (At least one original independent claim must be retained for filing purposes.)
- ☒ New formal drawings are enclosed.
- ☐ Certified copy of each foreign priority application on which the claim for priority under 35 U.S.C. 119 is based was filed in prior U.S. application serial no. , filed . A list of said foreign priority application(s) is (are) provided below. Acknowledgement thereof is requested.

Application No.

Filed

In

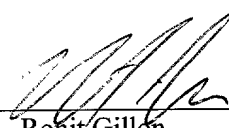
- ☒ The Commissioner is hereby authorized to charge payment of the following fees during the pendency of the application or credit any overpayment to Deposit Account No. 50-0955. A duplicate copy of this sheet is enclosed

- (X) Any patent application processing fees under 37 CFR 1.17
- (X) Any filing fees required under 37 CFR 1.16 for the presentation of extra claims.

Respectfully submitted,

Attorneys for Applicant(s)

By: \_\_\_\_\_

  
Rohit Gillon  
Reg # 39,202

[illegible][illegible]

## **Related Applications**

This application claims priority from U.S. Provisional Application No. 60/166,558, filed Nov. 19, 1999, the disclosure of which is herein incorporated by reference.

## **Field of the Invention**

This Application relates to a new process for the purchase (buying) and redemption (selling) (collectively, "trading") of shares of mutual funds (i.e., share of open-end investment companies), known in this application as Exchange (and Market) Listed Fund ("ELF") shares. More particularly, the application relates to placing orders for the purchase and redemption of the shares of any participating mutual fund, by any customer of any Member Firm of a Securities Exchange or Market Participant of a Securities Market, for end of the day, or periodic, settlement at the fund's Net Asset Value ("NAV"), or clearing price.

## **Background of the Invention**

Currently, traditional actively managed mutual funds are not listed on Securities Exchanges, or Securities Markets, or electronic communications networks ("ECNs") (collectively, "Exchanges"), for intra-day, or end of day trading, because (1) Exchanges have traditionally been markets for the intra-day price discovery of their listed securities among their Member Firms or Market Participants ("Member Firms") and their Member Firms' customers; and (2) traditional mutual funds, whether 'load' or 'no-load' funds, are purchased or redeemed after the calculation of the fund's NAV, which is usually computed at the end of the trading day. NAV represents the total assets owned by the fund, less the total liabilities, divided by the number of shares outstanding. In practice, investors may invest in mutual funds by dollar

amount (and may receive fractional shares) or number of shares. Share prices are calculated at end-of-day, on the basis of the NAV of the fund after the fund's daily securities transactions have been applied. A typical fund purchase or redemption transaction would take place after calculation of NAV. A customer might place an order for \$1,000 of a fund with a \$10.00 NAV per share, or order 100 shares of that fund at a cost of \$1,000. The majority of fund shares, and monies due, are then cleared and settled through a Fund/Securities Clearing Agent (e.g., Fund/SERV and the National Securities Clearing Corporation ("NSCC") ).

Although specific brokerage firms do provide their customers with daily purchase and redemption services for mutual fund shares through their fund supermarkets or proprietary fund distribution systems, there are various shortcomings with such services. Such firms generally allow only selected funds into their systems and offer either 'no-load' funds with 'no transaction fees' or 'transaction fees', or 'load' funds to their customers. Fund supermarkets that offer 'no transaction fee' funds to investors generally charge those mutual funds and/or their investment advisers/distributors annual asset-based fees of up to 35 basis points (e.g., .0035bps X \$1,000 of assets = \$3.50 per year). Often all or a portion of these fees are deducted from a fund's NAV, resulting in a lower investment return for investors than might otherwise be the case. Fund supermarkets that offer 'transaction fee' funds generally charge investors higher fees to purchase or redeem 'no-load' mutual fund shares than to make regular stock trades. Sales 'loads' charged by brokers could cost investors a relatively significant percentage of their fund purchases.

### **Summary of the Invention**

It is the object of this invention to overcome some of the disadvantages of the prior art by creating a more open, uniform and efficient system for mutual fund distribution which is

available to all investors and industry participants. The system and method allows any customer of any Member Firm of an Exchange to place purchase or redemption order(s) for Exchange listed mutual fund (ELF), shares, at any time such firm allows placing of such orders, via an Exchange, for end-of-day, or intra-day, settlement at NAV, or clearing price.

It is another object of this invention to provide a system with universal connectivity among all investors and industry participants such that any investor may purchase or redeem any ELF share, through any Member Firm of which the investor is a customer, at any time such firm allows placing of such orders.

It is a further object of the invention to provide a system that provides the fund industry with a standard asset-based distribution and compensation system that may lower the annual fees charged to participating funds and/or their advisers/distributors and/or their investors by Member Firms, and that may lower investors' fund transaction fees to levels at or below their Member Firms' standard stock commissions.

There is thus the need for a system that increases mutual fund distribution among more investors and industry participants, reduces fund expenses and lowers distribution costs for funds, their investment advisers/distributors, and investors (thus increasing investor returns). The system is open to all funds that want to participate; all funds with assigned securities symbols (e.g., those 5 character symbols with suffix 'X' currently assigned to funds by the National Association of Securities Dealers Automated Quotation ("Nasdaq")), or other symbols assigned by other assignment entities (e.g., Exchanges), representing such fund shares, are eligible to participate.

Thus in accordance with the invention there is provided a system for processing mutual fund order messages, including purchase and redemption transactions, comprising a server for receiving order messages from at least one of a plurality of designated Exchanges, reformatting the order messages and transmitting the order messages to at least one of a plurality of Fund/Securities Clearing Agents for confirmation, clearing and settlement.

Moreover, there is provided a method for processing mutual fund order messages, including purchase and redemption transactions, comprising the steps of receiving order messages from at least one of a plurality of designated Exchanges; reformatting the order messages; and transmitting the order messages to at least one of a plurality of Fund/Securities Clearing Agents for confirmation, clearing and settlement.

Further, in another embodiment of the invention there is provided a method for processing mutual fund order messages, including purchase and redemption transactions, comprising the steps of receiving order messages at an Exchange from at least one Member Firm; matching and executing order messages; and transmitting the matched and executed order messages to at least one of a plurality of Member Firms for confirmation and to at least one of a plurality of Funds/Securities Clearing Agents for clearing and settlement.

### **Brief Description of the Drawings**

The accompanying drawings, which are incorporated in and constitute a part of the specifications, illustrate preferred embodiments of the invention and, together with the general



description of the preferred embodiments given below, serve to explain the operation of the invention. It should be understood that the invention is not limited to the embodiments disclosed as examples, and is capable of variation within the scope of the appended claims. In the drawings,

FIG. 1 represents a system for trading exchange listed funds, in accordance with the invention.

FIG. 2a represents methods for trading exchange listed funds using the system of FIG. 1.

FIG. 2b represents method for NAV trading of exchange listed funds using the system of FIG.1.

FIG. 2c represents method for Intra-Day trading of exchange listed funds using the system of FIG.1.

FIG. 3 represents a prior art example of a standard Exchange Equity Order Entry Form(at).

FIG. 4 represents a prior art example of a Fund Order Entry Form (e.g., a Fund/SERV Order Form)

### **Detailed Description of the Drawings**

Referring to Fig. 1, any Investor 100 using the system can place orders to purchase or redeem ELF shares through one or more Exchange(s) 300 via any registered broker of an Exchange Member Firm 200. Moreover, all participating funds listed on the Exchange(s) and their fund (ELF) shares, are available for sale by all Member Firms 200. Mutual funds already having designated securities symbols, or other assigned representative symbols, qualify such funds to be Exchange Listed Funds (ELFs). Investor 100 can purchase ELF shares of all

participating funds through their Member Firms 200 as a securities trade, and pay a traditional commission (e.g., a stock commission) or other fees for broker services (e.g., asset based fees). Funds and their advisers/distributors may pay the Exchange and/or any other entity set up for this purpose a listing fee, an annual asset-based fee based on ELF share assets outstanding, and/or transaction fees. Further, an Investor 100 may pay a lower 'transaction' fee (e.g., a regular stock trade 'commission') per order to a Member Firm 200 for ELF share purchases and/or redemptions than they now pay in 'transaction fees' to purchase 'no load' funds or sales 'loads' to purchase 'load' funds.

With reference to FIG. 1, an Investor 100 wishing to purchase or redeem ELF shares communicates with a Member Firm 200 in any of a number of ways via a communications channel 900, including using a telephone, facsimile, personal computer over a Wide Area Network (WAN) such as the Internet, wireless or other type of input device, in person, etc. Communication channel(s) 900 may be any one of local area network (LAN), wide area network (WAN), wireless application protocol (WAP), dedicated lines, satellite or any other device or system for transmitting electronic data in a timely fashion. The communication channel(s) 900 is to and from, and among, Investors 100, Member Firms 200, the Exchange(s) 300, ELF System Server 400, the ELF Web Server 450, the Fund/Securities Clearing Agent 600, the Funds/Transfer Agents 700 and/or their Distributors (not shown), and the Depository 800.

Although one Investor 100, one Member Firm 200, one Exchange 300, one ELF System Server 400 one ELF Web Server 450, one ELF Database 500, one Fund/Securities Clearing Agent 600, one Funds/Transfer Agent 700 and one Depository 800 are shown, it is understood that any number of Investors, Member Firms, Exchanges, ELF Systems Servers, ELF Web

Servers, ELF Databases 500, Fund/Securities Clearing Agents, Funds/Transfer Agents and Depositories may be embodied in accordance with the invention.

The Investor 100 device, although not illustrated in Figure 1, further includes software such as an operating system necessary for operation of the computer system and various applications and hardware such as central processing unit and hard disks. The Investor 100 device still further includes hardware (not shown) such as a modem, a Local Area Network (LAN) adapter, etc., for executing a data communication with the Member Firm 200 computer system.

The Member Firm 200 uses a computer including a data entry device or electronic communications link with Investor 100 to ticket an ELF share order and create and log the Investor's 100 order into the Member Firm's 200 computer. The data entry device includes but is not limited to a keyboard, voice, bar code scanner, etc. Member Firm's 200 computer communicates with the Member Firm's 200 pre-existing customer and trading systems that comprises a database of customer and trade information. Member Firm's 200 computer includes interface systems and programs, not shown, that support communications with Investor 100, Exchange 300, ELF system Server 400, ELF Web Server 450, Fund/Securities Clearing Agent 600, Funds/Transfer Agents 700 and Depository 800 via communication channels 900, which may comprise separate channels between the various listed participants.

Member Firm's 200 pre-existing computer system electronically transmits ELF orders to the designated Exchange 300, via communication channel 900. The designated Exchange 300

forwards the ELF orders to the ELF System Server 400 via communication channel 900. The ELF System Server 400 stores trade related information on ELF Database 500, which may be accessed through connection to ELF Web Server 450. Although the ELF System Server 400 is shown as being located locally on the premises of an Exchange(s) 300, it may be located at a remote location(s), under the control of the Exchange(s) 300 and/or any other entity set up for this purpose.

The ELF System Server 400 receives order information from Member Firm 200 by Fund 700, type of order, and time of entry, etc. The ELF System Server 400 processes and transmits order information to the ELF Database 500, updates same, and allows access by ELF Web Server 450. Member Firm 200 and Funds 700 (and other ELF System Participants) may identify and follow their ELF orders through password protected inquiries, via the ELF Web Server 450. The ELF Web Server 450 may publish ELF market information such as ELF's NAV, intra-day trading volume, any NAV changes reported and other information in real-time, or summarized, over a network such as the Internet, for public access, in addition to password protected access by designated Participants. The Exchange 300 trading system also gives Member Firm 200 access to ELF order status via the customer services facilities currently employed by the Exchange(s) 300 for other Exchange 300 traded securities.

It is understood that an Exchange(s) may allow broker/dealers (not shown in FIG. 1) to act as intermediaries to be responsible for the capital commitment and legal and operational requirements which effect securities transactions (e.g., transactions in ELF shares as well as other securities).

The ELF System Server 400 may include several processors (not shown) coupled together. The ELF System Server 400 electronically reformats the ELF standard Exchange Equity Order Entry information (FIG.3.) into the Fund Order Entry Format (see FIG.4.), and transmits that order information to the Fund/Securities Clearing Agent 600, in real-time, single, batch, or multi-batch, throughout the day, or at the end of the day for execution, confirmation, and clearing, once or more per day, and settlement, at NAV, once or more daily. Moreover, the ELF System Server 400 and ELF Database 450, via ELF Web Server 450, provides Member Firms 200 with access to real-time, and/or summarized information related to submitted orders.

The Fund/Securities Clearing Agent 600 electronically forwards, individual, or netted, ELF orders to individual Funds / Transfer Agents 700, via communication channel 900 for processing, confirmation, clearing and settlement.

Funds/Transfer Agents 700 transmit electronic payments of cash dividends and/or dividend reinvestment (consisting of income and/or capital gains and/or return of capital) payable by Funds 700, via communication channel 900 to the appropriate Member Firm's Fund/Securities Clearing Agent 600 account via the Fund/Securities Clearing Agent 600. Such dividend information may also be routed to the ELF System Server 400 by Funds/Transfer Agents 700, or by a fund NAV reporting agent (e.g., Nasdaq), for tabulation of ELF information, including, but not limited to correct calculation of each fund's NAV, calculation of ELF total returns and ELF assets held at each Member Firm 200.

An additional method for distributions of dividends is through Depository 800. In particular, ELF's may be designated Depository 800 Eligible Securities (e.g., currently designated by the Depository Trust Corporation). Alternatively, a bridge communications channel 900 link may be created between Depository 800 and the Fund/Securities Clearing Agent 700 so that dividends payable by Funds / Transfer Agents 700 are first paid to the Depository 800 and then transferred to the Fund/Securities Clearing Agent 600 for distribution to Member Firms 200 holding ELF shares.

Referring to FIG. 2a, 2b, and 2c, a description of the preferred embodiment for practicing the method of the invention using the system of FIG.1 is shown. In particular, in the embodiment shown, ELF shares are purchased or redeemed (via Member Firm 200, Exchange 300, ELF System Server 400, Fund/Securities Clearing Agent 600) directly from the Fund 700, after calculation of NAV, and may also be traded intra-day, as stock, closed-end funds and Exchange traded funds are traded today. In this parallel, integrated system of NAV Trading and Intra-Day Trading, the ELF symbol is preferably a fund's currently assigned 5 character symbol, or is an assigned symbol (e.g., ELF Depository Receipts, each share representing beneficial ownership in a single share of a specific mutual fund).

With reference to Fig. 2a, in step 1, an Investor 100 wishing to purchase (buy) or redeem (sell) ELF shares communicates with the Member Firm 200 to place an order for a specified dollar or share amount of a specific fund.

In step 2, the Investor 100, or Member Firm 200, completes an ELF share order ticket, using a data entry device, or via electronic communications link, to create and input the Investor's 100 order into the Member Firm's 200 computer. The Investor 100 places the order as he or she would traditionally place orders for listed securities, *e.g.*, specifying an ELF security symbol, currently five (5) characters ending with the suffix 'X', or another designated symbol, the number of shares (or dollar amount if supported by Member Firm 200 order entry system), limit price (if applicable), type of order (*e.g.* good until cancelled, good through the day of entry, opening only, immediate or cancelled, good until executed, etc.) and other information that may be requested or required by Member Firm 200 and Exchange 300.

In step 3, the Member Firm 200 uses the firm's pre-existing trading system to process the order. The Firm's pre-existing trading system formats the data of such order(s) according to the requirements of the then current communications facility and/or routing systems (*e.g.*, currently the Securities Industry Automation Corporation (SIAC) for the New York Stock Exchange and the American Stock Exchange, or other such services as those used by Nasdaq or other Exchanges), which electronically link, and provide communications channels 900 and means by which the Member Firms 200 transmit and receive securities order information to and from the designated Exchange(s) 300 on which the ELF shares are listed and traded. A prior art example of a standard Exchange Equity Order Entry Format is shown in FIG. 3.

The Member Firm's 200 securities trading system then electronically transmits ELF share purchase or redemption orders, as regular securities trades with assigned symbols, via the communication channels 900 to the designated Exchange(s) 300, as they would a traditional

securities order, or by such other means as are operationally efficient (*e.g.*, if the Member Firm 200 had netting/crossing capabilities, they might only transmit/route netted/crossed orders to the designated Exchange 300).

In step 4, the designated Exchange's 300 order processing system would identify the transaction(s) as an ELF transaction(s) based on the ELF symbols (*e.g.*, the current Nasdaq five (5) character symbol with an 'X' appended thereto, or by an ELF fund symbol look-up table), and determine whether to route such orders to the ELF NAV trading system, or to the ELF Intra-Day trading system. ELF orders for NAV Trading are routed to the ELF System Server 400 (FIG.2b) and ELF orders for Intra-Day Trading which remain within the Exchange market for matching and execution (FIG. 2c) and, if applicable, later routed from Exchange 300 to ELF System Server 400 for NAV Trading.

Referring to FIG. 2b, method of NAV Trading using system in FIG. 1 is described.

In step 5 of FIG. 2b, ELF System Server 400 receives all ELF orders for NAV trading including ELF orders which have not been executed as a matched trade on the Exchange 300, from the Exchange 300, periodically (if applicable), or at the end of the day.

In step 6, the ELF System Server 400 records ELF orders from Exchange 300 (step 5), and receives and records additional ELF purchase and redemption orders from Exchange 300 (FIG. 2c, step D) for end-of-day, or periodic (if applicable), NAV Trading. The ELF System Server 400 processes any updates or actions against such related orders in the ELF Database



500. The ELF System Server 400 uses software to create a duplicate copy of the information received in the designated standard Exchange Equity Order Entry Format (FIG. 3). The ELF System Server 400 stores current, historical, and other information pertaining to, and totals of, ELF purchase and redemption orders by Member Firm 200 and by Fund 700, by date, including but not limited to gross purchase and redemption orders and net Fund positions, including dividends, of each Member Firm, in the ELF Database 500. The ELF System Server 400 uses applicable software programs to perform calculations, sorting and tabulation of records and creation of reports based upon data to be transmitted to, and/or received from, ELF Database 500 through communications interface with ELF System Server 400.

In step 7, the ELF System Server 400 reformats the ELF order information received from Member Firm 200 in standard Exchange Equity Order Entry Format into the data formats required by the Fund Order Entry Form (example in FIG. 4), and such reformatted order information is electronically forwarded to the Fund/Securities Clearing Agent 600 in real-time, single, batch, or multi-batch, throughout the day, or at the end of the day, through established electronic communication channel 900 to the Fund/Securities Clearing Agent 600 for execution, confirmation, clearing, and settlement, at NAV.

In step 8, the Fund/Securities Clearing Agent 600 electronically forwards, individual, or netted, ELF orders to individual Funds / Transfer Agents 700 for processing and confirmation, along communication channel 900 established between the Fund/Securities Clearing Agents 600 and the Funds/Transfer Agents 700, in accordance with the Fund/Securities Clearing Agent's 600 policies and procedures.

In step 9, Funds / Transfer Agents 700 send electronic ELF share confirmations to the Fund/Securities Clearing Agent 600, along communication channel 900 established between the Funds/Transfer Agents 700 and the Fund/Securities Clearing Agent 600 in accordance with the Fund/Securities Clearing Agent's 600 policies and procedures.

In step 10, the Fund/Securities Clearing Agent 600 electronically sends confirmation of Member Firms' 200 ELF share orders back to the ELF System Server 400 periodically, and at the end of the day, according to the Fund/Securities Clearing Agent 600 policies and procedures. Such information travels along communication channel 900 established between the Fund/Securities Clearing Agent 600 and the ELF System Server 400.

In step 11, the ELF System Server 400 reformats the ELF share order confirmation information received from the Fund/Securities Clearing Agent 600 back into the standard data formats required by the Exchange 300 and Member Firm 200 communications protocols and electronically forwards such order confirmations to ordering Member Firm(s) 200 through the Exchange(s) 300, in real-time, or delayed, through communication channels 900 currently established for such securities trade confirmation purposes.

In step 12, the Fund/Securities Clearing Agent 600 provides for automated clearing and settlement of confirmed purchases and redemptions of book-entry ELF shares, which are registered in street name by the fund, for Fund/Securities Clearing Agent 700 and/or Depository 800 Participants; money settlement through the Fund/Securities Clearing Agent 600 (e.g., currently, NSCC's Daily Money Settlement System), in consolidation with other Fund/Securities Clearing Agent 700 Participant settlements to produce a net debit or credit position for each

participant every business day, and corresponding ELF share movements via Fund/Securities Clearing Agent 600 or Depository 700.

In steps 13, cash dividends and/or dividend reinvestment (consisting of income and/or capital gains and/or return of capital) payable by Funds 700 are remitted through electronic payments by the Funds/Transfer Agents 700 to the appropriate Member Firm's Fund/Securities Clearing Agent 800 and/or Depository 800 Participant accounts, such dividend information also being routed to the ELF System Server 400, or to be received from Fund NAV reporting agent (e.g., Nasdaq) for tabulation of ELF information, including, but not limited to correct calculation of each fund's NAV, calculation of ELF total returns and ELF assets held at each Member Firm 200.

Referring to FIG. 2c, method of Intra-Day Trading using system in FIG.1 is described.

In step A of FIG 2c, ELF orders for Intra-Day Trading may be matched and executed through an Exchange market maker or specialist, which would have both sides of a trade, either as a principal or representing another Member Firm 200.

In step B, once the trade is executed as a matched trade, the confirmation information is electronically reported to the Member Firm 200, in real-time, single batch or multi-batch through communication channel 900 currently established for such purposes.

In step C, matched and executed ELF trades are reported to the Fund/Securities Clearing Agent 600 by the Exchange 300, in real-time, or delayed, through communications channel 900

currently established for Exchange traded securities trade confirmation, clearing and settlement purposes and to ELF System Server 400 through communication channel 900.

In step D, at the end of the day, and/or periodically (if applicable), open ELF orders are forwarded to ELF System Server 400 by the Exchange 300 for NAV trading and processing (to step 5 of FIG. 2b).

In step E, all information regarding the executed ELF orders is tabulated and processed by the ELF System Server 400 and stored in ELF Database 500.

In step F, the Fund/Securities Clearing Agent 600 forwards matched ELF order information to the Depository 800 with instructions.

In step G, the Fund/Securities Clearing Agent 600 provides for automated clearing and settlement of confirmed purchases and redemptions of book-entry ELF shares, which are registered in street name by the fund for Fund/Securities Clearing Agent 600 and/or Depository 800 Participants (e.g., money settlement currently through NSCC's Continuous Net Settlement System (CNS) and NSCC's Daily Money Settlement System) in consolidation with other Fund/Securities Clearing Agent 600 settlements to produce a net debit or credit position for each Participant every business day, and corresponding ELF share movements via Fund/Securities Clearing Agent 600 or Depository 800.

In step H, cash dividends and/or dividend reinvestment payable by Funds 700 (consisting of income and/or capital gains and/or return of capital) are remitted through electronic payments by the Fund / Transfer Agent 700 to the appropriate Member Firm's Fund/Securities Clearing Agent 600 and/or Depository 800 Participant accounts, such dividend information also being transmitted to the ELF System Server 400, or to be received from fund NAV calculation agent (e.g., Nasdaq) for tabulation of ELF information, including, but not limited to correct calculation of each fund's NAV, calculation of ELF total returns and ELF assets held at each Member Firm 200.

Having now described a few embodiments of the invention, it should be apparent to those skilled in the art that the foregoing is merely illustrative and not limiting, having been presented by way of example only. Numerous modifications and other embodiments, including combinations of features found in the illustrated embodiments, are within the scope of one of ordinary skill in the art and are contemplated as falling within the scope of the invention as defined by the claims.

**CLAIMS:**

WHAT IS CLAIMED IS:

1. A method for processing mutual fund order messages, including purchase and redemption transactions, comprising the steps of:

receiving order messages from at least one of a plurality of designated Exchanges;

reformatting the order messages; and

transmitting the order messages to at least one of a plurality of Fund/Securities Clearing Agents for confirmation, clearing and settlement.

2. The method of claim 1, wherein the step of transmitting further comprises the step of forwarding the order messages to at least one of individual Funds and Transfer Agents for processing and confirmation.

3. The method of claim 2, wherein the step of forwarding comprises forwarding said order messages, in single batch and multi-batch, throughout the day.

4. The method of claims 2 or 3, wherein the step of forwarding comprises forwarding said order messages, in single batch and multi-batch, at the end of the day.



11. The method of claim 1, further comprising the step of paying at least one of cash dividends and reinvested dividends to at least one of a Member Firm's Depository Account and a Fund/Securities Clearing Agent's Account.

12. The method of claim 2, further comprising the step of receiving the order messages at a server for tabulation.

13. The method of claim 12, further comprising the step of storing the order messages in a database.

14. The method of claim 13, further comprising the step of storing information relating to said order messages by date, Member Firms and funds, including gross purchase and redemption and historical orders, dividends, and net fund positions.

15. The method of claim 13, further comprising the step of receiving dividend information at the server for tabulation of order message information, comprising correct calculation of each fund's NAV, calculation of fund total returns over different time periods and fund assets held at each Member Firm.

16. The method of claim 15, further comprising the steps of storing NAV and total return information including dividends and fund assets held at each Member Firm at different points in time.



17. The method of claim 16, further comprising the steps of sorting orders, performing calculations relating to orders including the steps of tabulating orders into records and generating reports.

18. A method for processing mutual fund order messages, including purchase and redemption and buy and sell transactions, comprising the steps of

receiving order messages at an Exchange from at least one Member Firm;

matching and executing order messages; and

transmitting the matched and executed order messages to at least one of a plurality of ordering Member Firms for confirmation and to at least one of a plurality of Funds/Securities Clearing Agents for clearing and settlement.

19. The method of claim 18, wherein the step of transmitting comprises the step of forwarding said order messages, in single batch and multi-batch, throughout the day.

20. The method of claim 18, wherein the step of transmitting comprises the step of forwarding said order messages, in single batch and multi-batch, at the end of the day.

21. The method of claim 18, further comprising the step of transmitting the matched and executed order messages to a server for tabulation and processing.
22. The method of claim 21, further comprising the step of storing the matched and executed order messages in a database.
23. The method of claim 22, further comprising the step of storing information relating to said matched and executed order messages by date, Member Firms and funds, including gross purchase and redemption and historical orders, dividends, and net fund positions.
24. The method of claim 23, further comprising the step of receiving dividend information at the server for tabulation of order message information, comprising correct calculation of each fund's NAV, calculation of fund total returns over different time periods and fund assets held at each Member Firm.
25. The method of claim 24, further comprising the steps of storing NAV and total return information including dividends and fund assets held at each Member Firm at different points in time.
26. The method of claim 25, further comprising the steps of sorting orders, performing calculations relating to orders including tabulating orders into records and generating reports.

27. The method of claim 18, wherein the step of transmitting the matched and executed order messages to the Funds/Securities Clearing Agents further includes the step of transmitting matched and executed order messages to at least one of a plurality of Depositories.

28. The method of claim 27, further comprising the step of settlement of said matched and executed orders, including Depository eligible book-entry orders, through at least one of the Fund/Securities Clearing Agents using at least one Fund/Securities Clearing Agent's continuous, daily and other money settlement system.

29. The method of claim 28, further comprising the step of paying at least one of cash dividends and reinvested dividends to at least one of a Member Firm's Depository Account and a Fund/Securities Clearing Agent's Account.

30. A system for processing mutual fund order messages, including purchase and redemption and buy and sell transactions, comprising a server for receiving order messages from at least one of a plurality of designated Exchanges, reformatting the order messages and transmitting the order messages to at least one of a plurality of Fund/Securities Clearing Agents for confirmation, clearing and settlement.

31. The system of claim 30, wherein at least one of the Fund/Clearing Agents forwards the order messages to at least one of individual Funds and Transfer Agents for processing and confirmation.

32. The system of claim 30, wherein said server transmits said order messages, in single batch and multi-batch, throughout the day.

33. The system of claim 30, wherein said server transmits said order messages, in single batch and multi-batch, at the end of the day.

34. The system of claim 30, wherein said server receives confirmation messages from at least one of said Fund/Clearing Agents.

35. The system of claim 34, wherein the confirmation messages are received periodically and at the end of the day.

36. The system of claim 34, wherein the server reformats the confirmation messages and transmits the confirmation messages to at least one of a plurality of ordering Member Firms.

37. The system of claim 36, wherein said server transmits the confirmation messages to at least one of the Member Firms, in single-batch and multi-batch, throughout the day.

38. The system of claim 36, wherein said server delays the transmission of said confirmation messages to at least one of the Member Firms, until the end of the day.

39. The system of claim 30, wherein at least one of said Fund/Securities Clearing Agents and at least one of said Depositories use at least one of said Fund/Securities Clearing Agent's money settlement systems to settle orders included in said order messages.

40. The system of claim 30, wherein at least one of the Fund/Transfers Agents pays at least one of cash dividends and reinvested dividends to at least one of a Member Firm's Depository Account and a Fund/Securities Clearing Agent Account.

41. The system of claim 30, wherein said server tabulates said order messages.

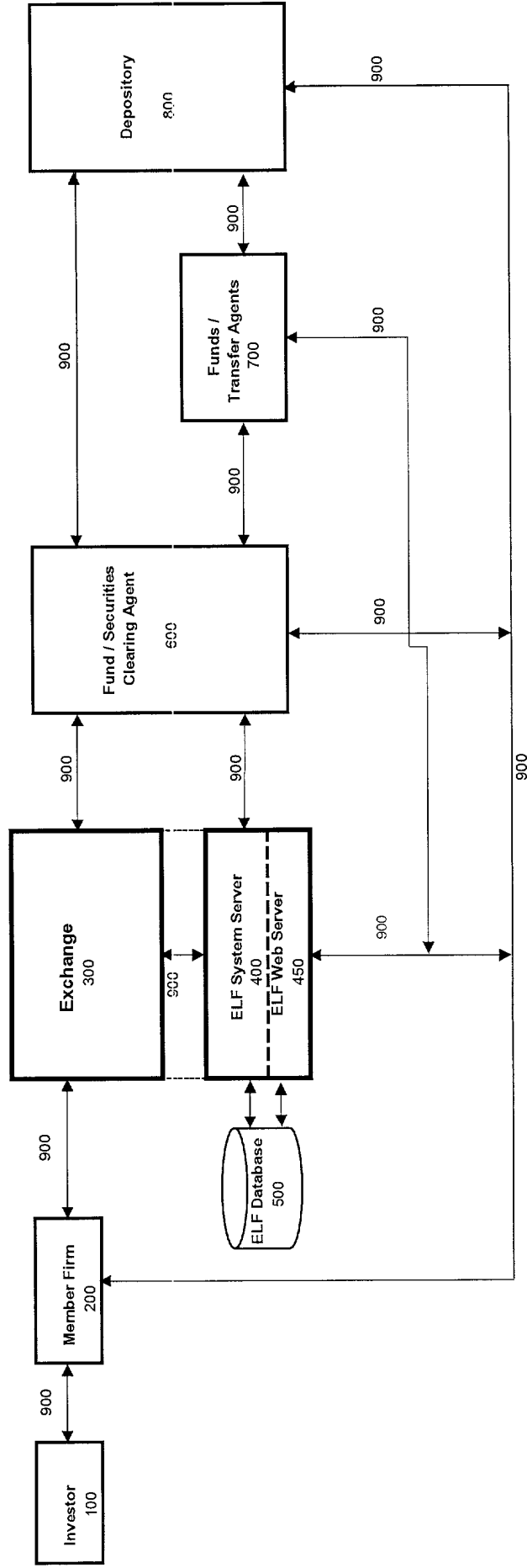
42. The system of claim 30, wherein the server further comprises a database for storing said order messages.

43. The system of claim 42, wherein said database stores information relating to said order messages by date, Member Firms and funds, including gross purchase and redemption and historical orders, dividends, and net fund positions.

44. The system of claim 42, wherein said server receives dividend information from at least one of the Fund/Transfer Agents for tabulation of order message information, comprising correct calculation of each fund's NAV, calculation of fund total returns over different time periods and fund assets held at each Member Firm.



[illegible][illegible]



**FIG. 1**



## ELF trading

### NAV Trading and Intra-Day Trading

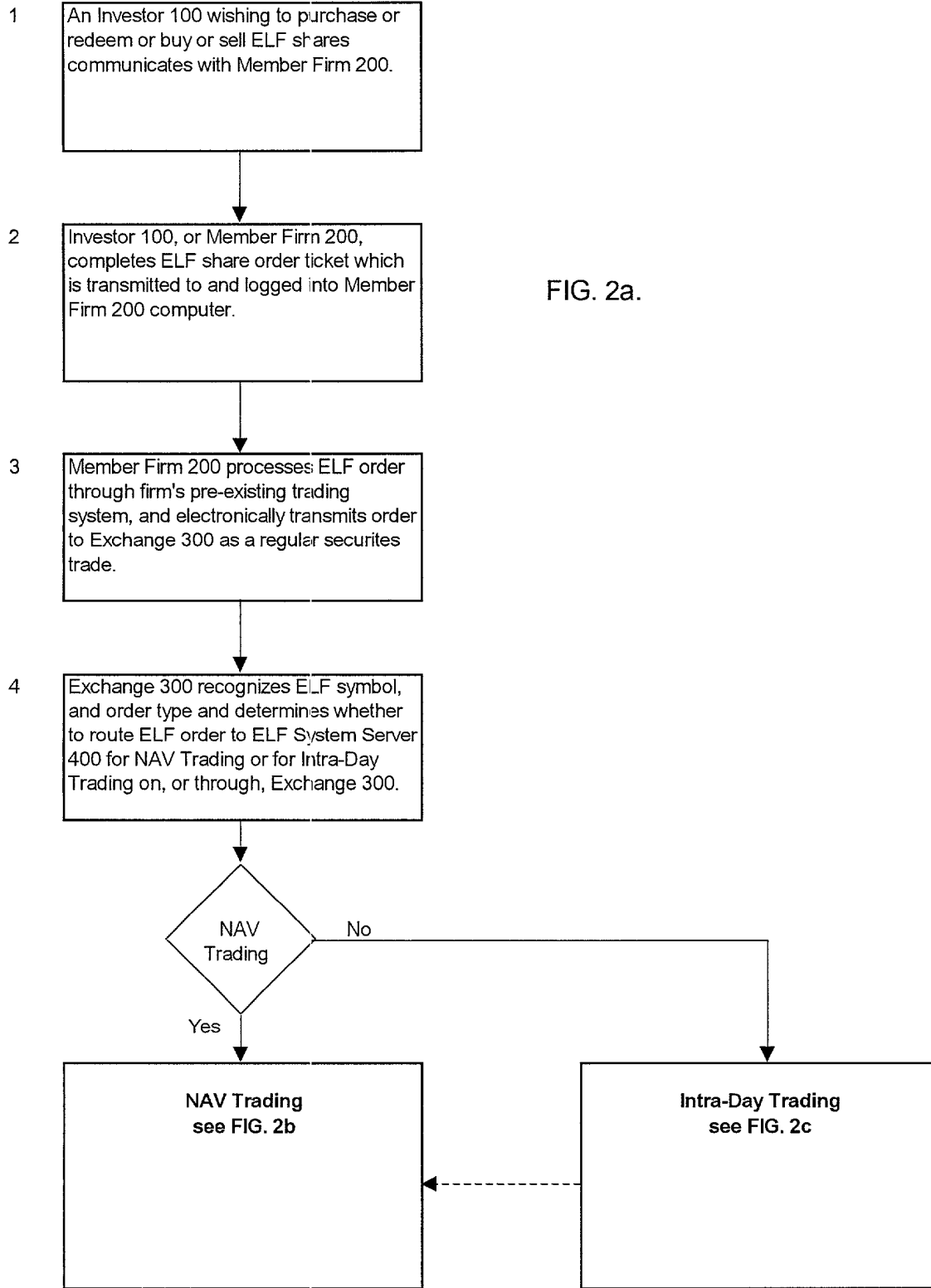
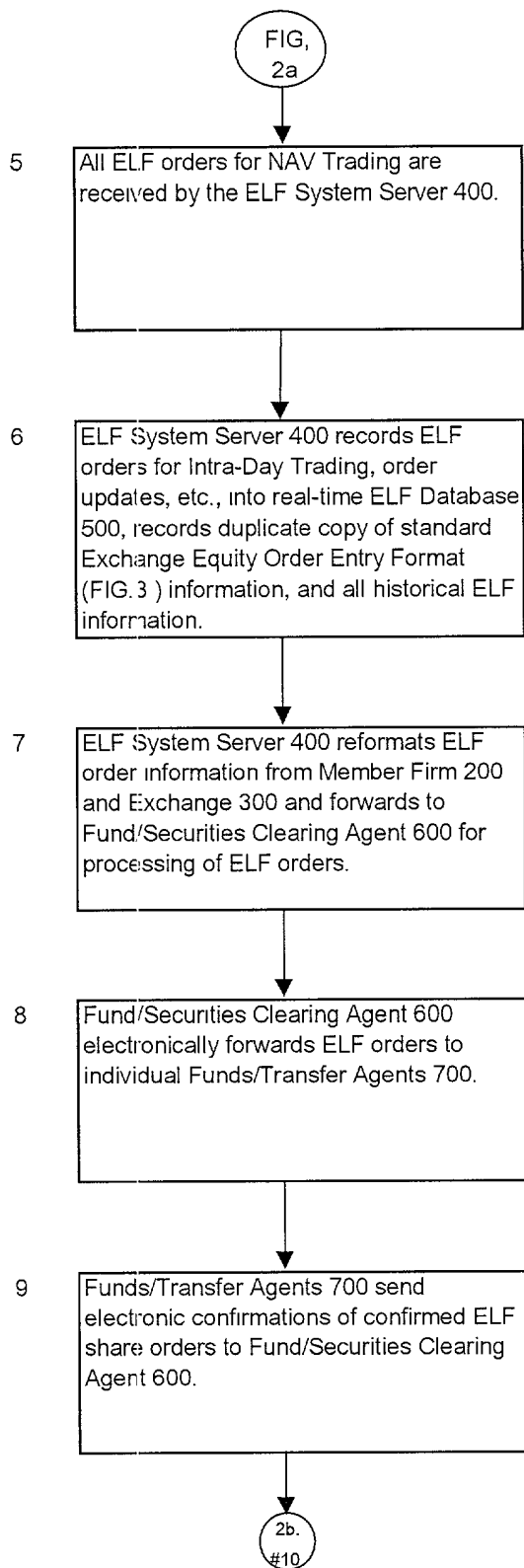


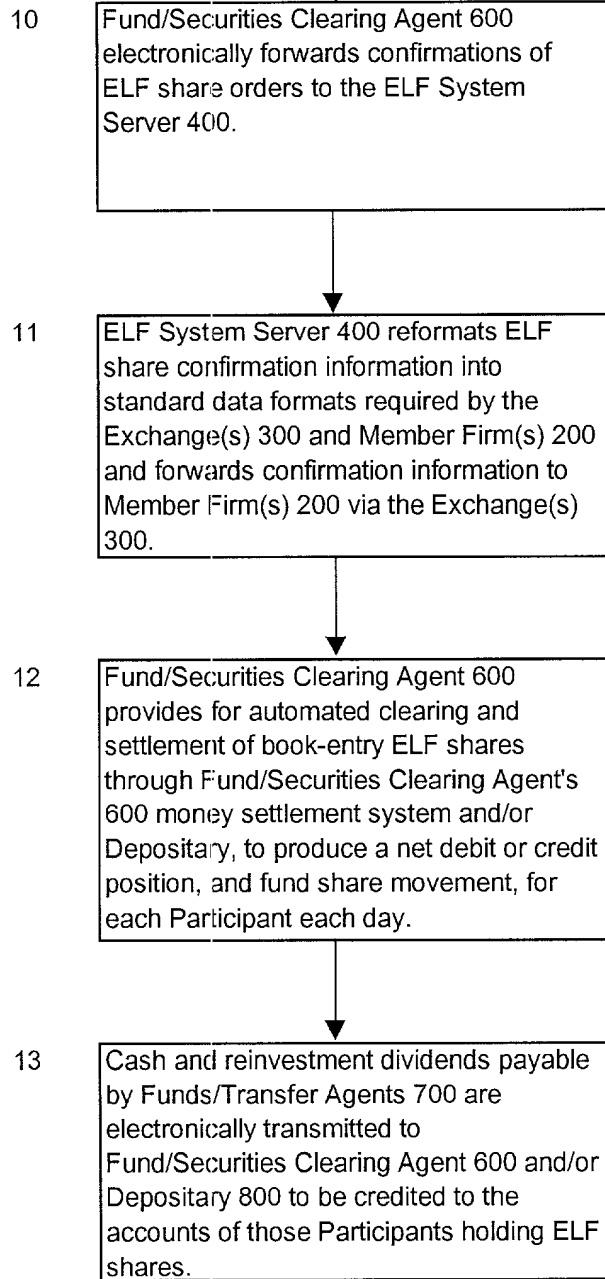
FIG. 2a.

FIG. 2b

## NAV Trading



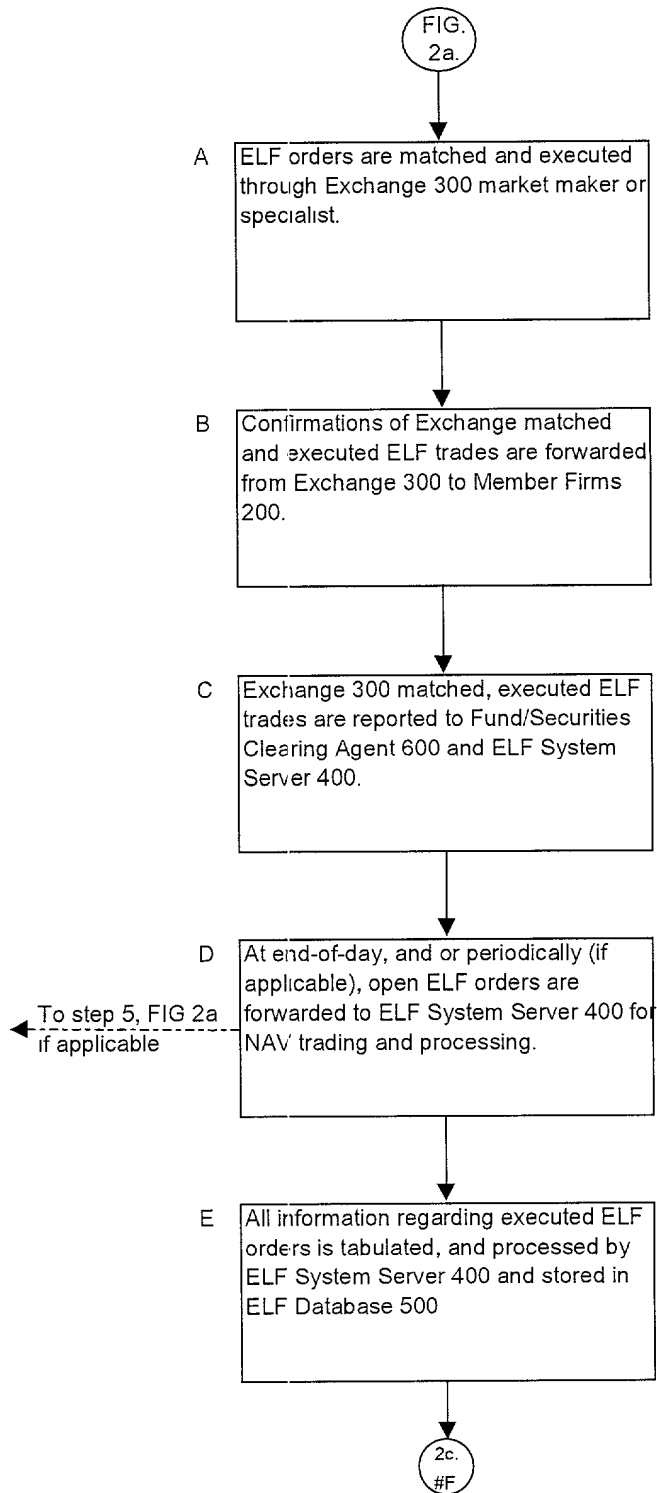
2b.  
#9



**FIG. 2b**

FIG. 2c

## Intra-Day Trading



2c.  
# E

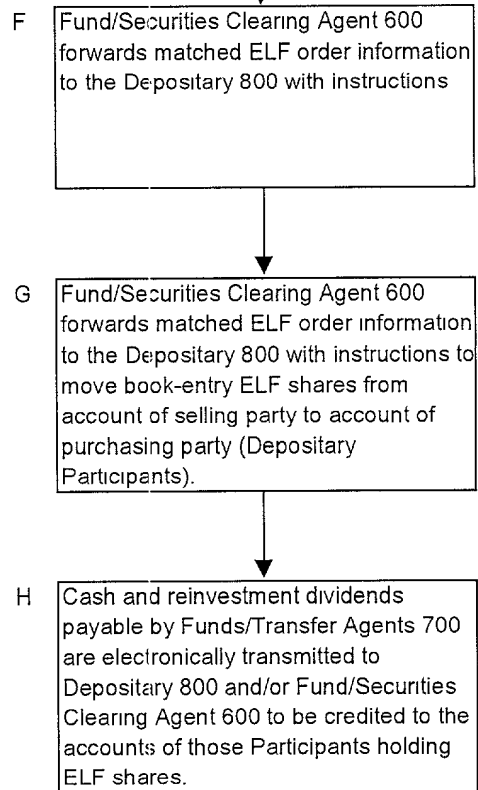


FIG. 2c

[illegible]

LINE # / MAX. CHARACTERS	ENTRY															
0 / 32	SHARED INTERFACE FIRM IDENTIFIER															
1 / 32	BRANCH CODE					SEQUENCE NUMBER										
1A / 32	EXCHANGE			ROUTING CODE			COMP SPEC			BOOTH ID						
2 / 32	POSS DUPLICATE			CANCEL			BUY		SL		SSHRT					
							BUY MINUS		SL PLUS		SSHRT EXEMPT					
3 / 74	QUANTITY			STOCK SYM				SUFFIX			PRICE					
3A / 32	ALL OR NONE		TIME-IN-FORCE		DO NOT REDUCE/ INCREASE			DELIVERY INSTRUCTION		TRY TO STOP		ACCOUNT TYPE				
3B / 32	CXL		PRICE: FOR PRICE CHANGE ONLY			BUY		SL		SSHRT						
						BUY MINUS		SL PLUS		SSHRT EXEMPT						
3C / 74	QUANTITY		STOCK SYM		SUFFIX		PRICE:		CLO		OB		STP		LMT: _____	
							MKT		BAS		WOW					
3D / 32	ALL OR NONE		TIME-IN-FORCE		DO NOT REDUCE/ INCREASE			DELIVERY INSTRUCTION		TRY TO STOP		ACCOUNT TYPE				
3E / 32	LEAVES			TIME-IN-FORCE (SAME AS LINE 3A)												
3F / 32	CURRENTLY NOT USED															
4 / 32	MISCELLANEOUS INFORMATION															
4A / 32	REFERENCE DATA					MISCELLANEOUS INFORMATION										
4B / 74	GIVE UP DATA					CONFIRMATION DATA										
TRAILER LINE																
MEMBER FIRM'S CUSTOMER INFORMATION																

FIG. 4, Fund Order Entry Form

	NEXT SEGMENT	TRANSACTION TYPE	AUTOROUTE ID
---	-----------------	---------------------	-----------------

Fund/SERV

ORDER

Datatrak SYSID: 01125 = Firm

record 1 of 5 (required)

Field Name	Start	End	Len	Type	Description	Opt/Req	Reject Code
Physical Sequence Number	1	2	2	A/N		R	004
Logical Sequence Number	3	4	2	A/N	01	R	004
Originator Type	5	5	1	A/N	B = Firm T = TPA	R	187
Filler	6	7	2	A/N	Space	R	
Firm Number	8	11	4	N		R	008
Firm Suffix	12	14	3	A/N	See Fund/SERV manual	O	154
Record Type	15	17	3	A/N	001 = Order	R	002
Test Indicator	18	18	1	A/N	0 = Production 1 = Test	R	122
Priority Indicator	19	19	1	A/N	0 = Normal 1 = High priority	O	151
Fund Number	20	23	4	N		O	100
Fund Suffix	24	26	3	A/N	See Fund/SERV manual	O	155
Security Issue Country Code	27	28	2	A/N	Space. For future use	R	
Security Issue ID	29	37	9	A/N		R	007
Security Issue Check Digit	38	38	1	A/N	Space. For future use	R	
Security Issue Type	39	40	2	A/N	24 = Money Market 25 = Load Fund 26 = No Load Fund	R	150
Control Number	41	55	15	A/N		R	005
Correction Indicator	56	56	1	A/N	Space	R	006
Transaction Type	57	57	1	A/N	0 = Single purchase 1 = Letter of intent 2 = Rights of accumulation 3 = Net asset value 4 = Group purchase	R	017

004100 "GET/50"

[illegible][illegible]



FIG. 4, Fund Order Entry Form

NSCC Reject Code	82	84	3	A/N	Input : Space Output: Reject code	R	
TPA Number (I)	85	88	4	A/N	Required if Originator Type = T or Membership Identifier = 02	OC	188
Filler	89	100	12	A/N	Space	R	

	PREVIOUS SEGMENT	NEXT SEGMENT	TRANSACTION TYPE	AUTOROUTE ID
---	---------------------	-----------------	---------------------	-----------------

## Fund/SERV

Datatrak SYSID: 01125 = Firm

## ORDER

record 2 of 5 (required)

Field Name	Start	End	Len	Type	Description	Opt/ Req	Reject Code
Physical Sequence Number	1	2	2	A/N		R	004
Logical Sequence Number	3	4	2	A/N	02	R	004
Filler	5	7	3	A/N	Space	R	
Share Quantity	8	21	14	N	9,999,999,999.9999 Optional if full liquidation; Not allowed if Dollar Amount > 0.	RC	019
Customer Account Number at Firm	22	41	20	A/N		R	020
Fund Account Indicator	42	42	1	A/N	0 = New account - domestic 1 = New account - foreign 2 = Existing account - domestic 3 = Existing account - foreign	R	010
Customer Account Number at Fund	43	62	20	A/N	Required for all non-networked liquidations (Network Control Ind = 0 and Trans Code = 03 or 04)	OC	011

DDCTT SETS 260

Table 1. Demographic characteristics of the study population	
Age (years)	Mean (SD)
Male	55.2 (10.5)
Female	56.8 (11.2)
Marital status	
Married	78.5%
Single	21.5%
Education level	
High school or above	65.2%
Below high school	34.8%
Occupation	
White collar	45.1%
Blue collar	54.9%
Income (USD/month)	
< 1000	12.3%
1000-2000	35.7%
2000-3000	28.9%
> 3000	23.1%
Health insurance	
Yes	89.4%
No	10.6%
Comorbidities	
Hypertension	42.1%
Diabetes	18.5%
Cholesterol	31.2%
Smoking status	
Current smoker	15.3%
Former smoker	22.7%
Non-smoker	62.0%
Alcohol consumption	
Regular	8.9%
Occasional	14.5%
Never	76.6%

PREVIOUS SEGMENT	NEXT SEGMENT	TRANSACTION TYPE	AUTOROUTE ID
---------------------	-----------------	---------------------	-----------------

FIG. 4, Fund Order Entry Form

00715159 1100 00715159 1100

Fund/SERV					ORDER		
Datatrak SYSID: 01125 = Firm					record 3 of 5 (required)		
Field Name	Start	End	Len	Type	Description	Opt/Req	Reject Code
Physical Sequence Number	1	2	2	A/N		R	004
Logical Sequence Number	3	4	2	A/N	03	R	004
Filler	5	7	3	A/N	Space	R	
Dollar Amount (+)	8	23	16	N	99,999,999,999,999.99 Optional for non Money Market trades if full liquidation; Not allowed for non Money Market trades if Share Quantity > 0. This amount will be settled by NSCC for Money Market purchase if no confirmation has been received	RC	019
Currency Indicator	24	26	3	A/N	Space. For future use	R	110
Anticipated Settlement Date (+)	27	34	8	A/N	mmddccyy Required if Settlement Override Reason Code is provided	OC	180
Branch Identification Number	35	43	9	A/N		R	035
Related Trade Indicator	44	44	1	A/N	0 = No 1 = Yes	R	065
Related Trade Identifier	45	46	2	A/N	Required if Related Trade Indicator = 1	OC	105
Customer Name	47	66	20	A/N		R	063
SSN/EIN Indicator	67	67	1	A/N	0 = Tax ID number 1 = Social security number	R	102
SSN/EIN Number	68	76	9	A/N		R	103
Liquidation Indicator	77	77	1	A/N	Required if Trans Type = 5. 1 = Gross 2 = Net 3 = No sales charge - other	OC	046

FIG. 4, Fund Order Entry Form

					4 = CDSC waiver due to correction 5 = Death 6 = Disability 7 = Mandatory distribution 8 = Systematic withdrawal		
NAV Reason Code	78	78	1	A/N	Required if Trans Type = 3. 0 = Other 1 = Net asset value transfer  2 = Repurchase 3 = Employee 4 = Error correction 5 = Wrap fee account 7 = Commissionable defined contribution plan 8 = Non-commissionable defined contribution plan	OC	104
State of Sale	79	80	2	A/N	Required for new purchases	OC	012
Filler	81	100	20	A/N	Space	R	

As a below named inventor, I hereby declare that:

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

the specification of which (check only one item below):

[x] is attached hereto.

[ ] was filed as United States application

Serial No. \_\_\_\_\_

on \_\_\_\_\_

and was amended

on \_\_\_\_\_ (if applicable).

[ ] was filed as PCT international application

Number \_\_\_\_\_

on \_\_\_\_\_

and was amended under PCT Article 19

on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations § 1.56(a).

NYLIB1/759513

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:			
COUNTRY (if PCT, indicate "PCT")	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 USC 119
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

PRIOR U.S. PROVISIONAL APPLICATION(S) FOR BENEFITS OF PRIORITY UNDER 35 U.S.C. 119(E):	
U.S. APPLICATIONS	
U.S. Application Number	U.S. Filing Date
60/166,558	11/19/99

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, § 1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. 120:

U.S. APPLICATIONS		STATUS (Check one)		
U.S. Application Number	U.S. Filing Date	Patented	Pending	Abandoned
PCT APPLICATIONS DESIGNATING THE U.S.				
PCT Application No.	PCT Filing Date	U.S. Serial Numbers Assigned (if any)		

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

David Toren 19,468  
Ronit Gillon 39,202

Alexander Zinchuk 30,541

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BROWN & WOOD LLP One World Trade Center New York, New York 10048-0557	Ronit Gillon, Esquire Intellectual Property Group (212) 839-7355

2 0 1	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY
		MACPHERSON	JAMES	
		COS COB	CONNETICUT	USA
		5 SCHOOL STREET	COS COB	CONNETICUT

0044169450

2 0 2	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY

2 0 3	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY

2 0 4	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

SIGNATURE OF INVENTOR 201 <i>[Signature]</i>	SIGNATURE OF INVENTOR 202
DATE Nov. 17, 2000	DATE
SIGNATURE OF INVENTOR 203	SIGNATURE OF INVENTOR 204
DATE	DATE